

WHAT IS CLAIMED IS:

1. A high-frequency-corresponding simulation apparatus comprising:

an element setting unit which sets a plurality of  
5 elements corresponding to wiring patterns in accordance with  
circuit design information;

a resistance-value calculation unit which calculates  
the total of resistance values each of which is the sum of  
the DC resistance value and skin resistance value of each  
10 of the elements as the total resistance value;

a first determination unit which determines whether  
the total resistance value is less than a first threshold  
value;

a sorting unit which sorts resistance values  
15 corresponding to the elements when the total resistance value  
is equal to or larger than the first threshold value in  
accordance with a determination result by said first  
determination unit;

a second determination unit which integrates the  
20 resistance values starting with a resistance value having  
the smallest high-frequency element delay and determines  
whether the integration result reaches a value immediately  
before a second threshold value whenever the integration  
is executed; and

25 an analysis unit which executes an analysis by using

an element corresponding to an integrated resistance value as a RLC model and elements other than the element as high-frequency element models when said second determination unit determines that the integration result 5 reaches the value immediately before the second threshold value.

2. The high-frequency-corresponding simulation apparatus according to claim 1, wherein said analysis unit 10 executes an analysis by using all elements as RLC models when the total resistance value is less than the first threshold value.

3. The high-frequency-corresponding simulation apparatus according to claim 1, wherein said analysis unit 15 superimposes a skin resistance value on a DC resistance value of a RLC model.

4. The high-frequency-corresponding simulation apparatus according to claim 1, further comprising a setting 20 change unit which changes the value of the second threshold value.

5. The high-frequency-corresponding simulation apparatus according to claim 4, wherein said setting change unit also changes the value of a skin resistance value to be superimposed on the DC resistance value.

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6. The high-frequency-corresponding simulation apparatus according to claim 1, wherein said circuit is constituted of a plurality of substrates.

10 7. A high-frequency-corresponding simulation method comprising the steps of:

setting a plurality of elements corresponding to wiring patterns in accordance with circuit design information;

15 calculating the total of resistance values each of which is the sum of the DC resistance value and skin resistance value of each of the elements as the total resistance value;

determining whether the total resistance value is less than a first threshold value;

20 sorting resistance values corresponding to the elements by using a high-frequency element delay as a key when it is determined that the total resistance value is equal to or larger than the first threshold value;

25 integrating the resistance values starting with a resistance value having the smallest high-frequency element

delay;

determining whether the result of integration reaches a value immediately before a second threshold value whenever the integration is executed; and

5       executing an analysis by using an element corresponding to an integrated resistance value as a RLC model and elements other than the element as high-frequency element models when it is determined that the integration result reaches the value immediately before the second  
10 threshold value.

8.       A computer-readable recording medium which stores a computer program which when executed on a computer realizes the steps of:

15       setting a plurality of elements corresponding to wiring patterns in accordance with circuit design information;

          calculating the total of resistance values each of which is the sum of the DC resistance value and skin resistance  
20 value of each of the elements as the total resistance value;

          determining whether the total resistance value is less than a first threshold value;

          sorting resistance values corresponding to the elements by using a high-frequency element delay as a key  
25 when it is determined that the total resistance value is

equal to or larger than the first threshold value;

integrating the resistance values starting with a resistance value having the smallest high-frequency element delay;

5 determining whether the result of integration reaches a value immediately before a second threshold value whenever the integration is executed; and

executing an analysis by using an element corresponding to an integrated resistance value as a RLC model and elements other than the element as high-frequency element models when it is determined that the integration result reaches the value immediately before the second threshold value.

15 9. A computer program which when executed on a computer realizes the steps of:

setting a plurality of elements corresponding to wiring patterns in accordance with circuit design information;

20 calculating the total of resistance values each of which is the sum of the DC resistance value and skin resistance value of each of the elements as the total resistance value;

determining whether the total resistance value is less than a first threshold value;

25 sorting resistance values corresponding to the

elements by using a high-frequency element delay as a key when it is determined that the total resistance value is equal to or larger than the first threshold value;

5 integrating the resistance values starting with a resistance value having the smallest high-frequency element delay;

determining whether the result of integration reaches a value immediately before a second threshold value whenever the integration is executed; and

10 executing an analysis by using an element corresponding to an integrated resistance value as a RLC model and elements other than the element as high-frequency element models when it is determined that the integration result reaches the value immediately before the second  
15 threshold value.